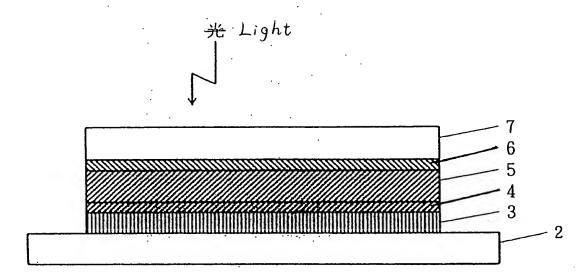
Fig. 1 . 图1 Pattern Pattern パターンP 1 <del>ペクーン</del> P 1 金属裏面電極3 (a) Metal back electrode 基板 2 Substrate Pattern P2 Buffer layer バッファ層6 Pattern P2 光吸収層 5 (b) 光吸収層5 固体潤滑剂層4 (極薄膜層) Solid lubricant layer 4 Light absorbing -Metal back electrode 金属裏面電極3 (Ultrathin film layer) layer 5 Window layer Window lax Pattern Pattern P2 P2 **急層** 7 窓層7 Buffer layer <del>パターン</del>P 3 バッファ暦 6 Pattern Pattern プターンP2 光吸収層 5 光吸収層 5 固体潤滑剂層 4 (c) (極薄膜層) Solid lubricant layer 4 Light absorbing = (Ultrathin film layer) 金属裏面電極3 layer 5 Metal. back electrods基板 2 →P1 Substrate

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Pattern

Fig. 2.



## Integrated thin-film solar cell 1

- 2: Substrate
- 3: Metal. back electrode
- 4: Solid lubricant layer
- 5: Light absorbing layer (p-type)
- 6: Interface Layer (buffer layer)
- 7: Window layer (n-type)

Fig.3.
<del>図3</del>

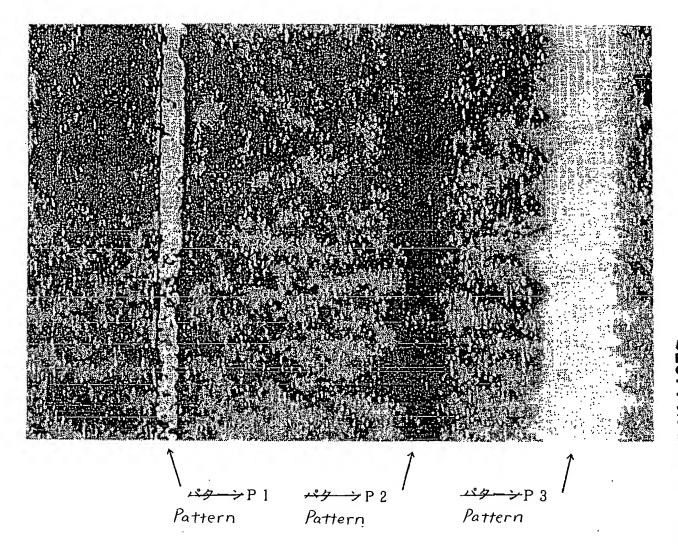


Fig. 4 図4

CIGS light absorbing layer

MoSe<sub>2</sub> ultrathin layer

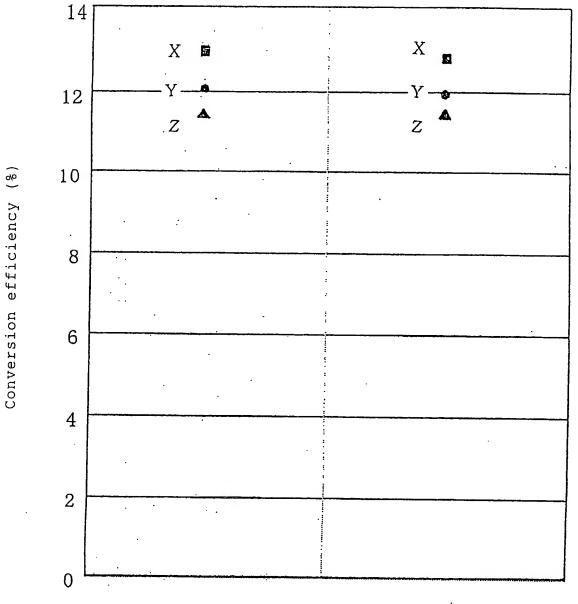
backMo metal electrode



500 A

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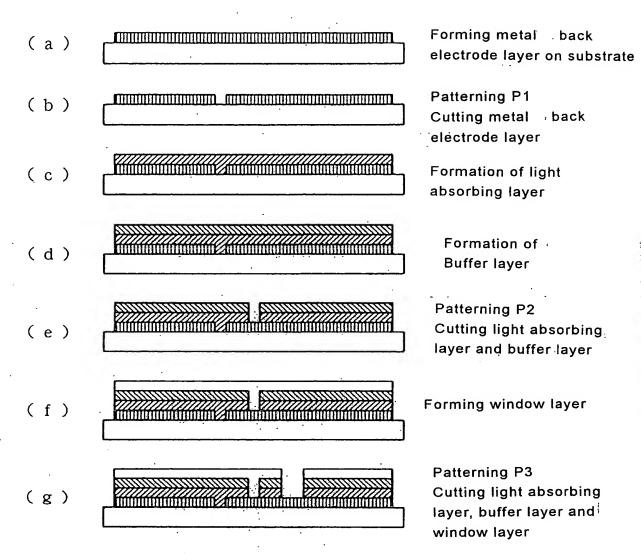
Fig. 5. <del>図 5</del>



(A) Pattern P2 formed before forming buffer . after forming buffer layer

Pattern P2 formed (B) layer

Fig. 6,



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